

CLIMATE PREDICTION APPLICATION IN THE SKI INDUSTRY: MOUNTAIN MANAGERS AND SEASON TICKET BUYERS

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- *Arizona Snowbowl*, near Flagstaff, Arizona
 - Data 1982/83-2004/05 seasons
 - Logit model testing the impact of the ENSO oscillation on ski season conditions
- *Mountain manager:*
 - Model: dependent (binary) variable, Minimum 90 day season and independent variable La Niña season [pr>ChiSq=0.0387]
 - The odds in a La Niña season (vs. a non-La Niña season) to meet a minimum 90 day season length is 0.123 [CI 95% 0.017-0.897]
 - Model: Minimum 100 Day season and ENSO index [pr>ChiSq=0.0508]
 - A one unit increase in the ENSO index increased the odds of meeting a minimum 100 day season (vs. not meeting this minimum) by a factor of 3 [CI 95% 0.996-9.034]
- *Season ticket buyer:*
 - Model: cover the cost of an early-bought \$399 season ticket and ENSO [pr>ChiSq=0.0926]
 - A one unit increase in the ENSO index, increased the odds of covering the costs of a \$399 season ticket (vs. not meeting minimum ski days to cover the cost) by a factor of 2.522 [CI 95% 0.856-7.412]
 - Model: cover the cost of a late bought \$699 season ticket and La Niña [pr>ChiSq=0.0171]
 - The odds in a La Niña season (vs. a non-La Niña season) to cover a late-bought \$699 season ticket is 0.047 [CI 95% 0.004-.579]
- *Forecast Evaluation Tool* [<http://hydis6.hwr.arizona.edu/ForecastEvaluationTool>]:
 - Forecast skill in Northeastern Arizona is based on the strong ENSO signal
 - Tested a variety of lead times for winter precipitation and winter temperature forecasts using the Brier Skill Score Test:
 - Forecasts are often made and are often right
 - Decision-makers might use forecasts for:
 - Hiring, marketing, and pricing decisions
 - Estimating snowmaking costs/water consumption
 - Season ticket purchase decisions